



## 1. NATURAL MEDICINAL CHEMISTRY : CURES FROM A “LIVING FOSSIL”

Pooja Sapra Sharma<sup>1</sup> and Rajan Sharma

Eidogen-Sertanty Inc, California, U.S.A.

<sup>1</sup>Ch. S. S. Shandilya (P.G.) College, Machhra, Meerut.

E-mail: poojasapra.sharma@gmail.com

**ABSTRACT:** Ginkgo (*Ginkgo biloba* L.), is one of the oldest living tree species and its leaves are among the most extensively studied herbs in use today. Nicknamed as “living fossil” by Charles Darwin, *Ginkgo* is over 150 million years old and was thought to be extinct until it was found growing in China in 17<sup>th</sup> Century. In western world, *Ginkgo* supplements are among the best-selling herbal medications. *Ginkgo* leaves contain two types of chemicals (flavonoids and terpenoids) believed to have potent antioxidant properties. *Ginkgo* has been used in Chinese traditional medicine to treat blood disorders and enhance memory. Scientific studies throughout the years have found evidence that supports these claims. Although not all studies agree, *Ginkgo* may help treat dementia (including Alzheimer’s disease) and intermittent claudication, or poor circulation in the legs. It also shows promise for enhancing memory in older adults.

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## 2. INFLUENCE OF SOIL NUTRIENT STATUS ON YIELD AND QUALITATIVE ATTRIBUTES OF POMEGRANATE (*Punica granatum* L.) AND BER

(*Zizyphus mauritiana* LAMK.)

Jitendra Singh and Raj Kumar<sup>1</sup>

College of Horticulture and Forestry, Maharana Pratap University of Agriculture and Technology, Campus Jhalarpattan, Jhalawar-326 023 (Rajasthan).

<sup>1</sup>KVK, Vejhalpur, Panchmahals, Godhra-389 340, Gujarat, India

**ABSTRACT:** Pomegranate and ber are important fruits find favour especially in arid/ semi-arid areas of tropics all across the globe. Bright sun-shine and light soil offer premium quality in harvest unmatched to the harvest obtained from any where else in the world. However, the share of India in world trade is abysmally low. Quality of the produce matching to international standard is proved as the hard impediment in this regard. It is obvious that the quality of produce depends a lot upon the inherent fertility and productivity of soil. To have an account of all such factors study was undertaken selecting ten representative orchards of pomegranate cv. Ganesh and also of ber cv. Gola of Bikaner district and it was attempted to study the inherent nutrient status of orchards and its impact on physicochemical characteristics of fruits. Soil samples were collected from each orchard from 0-60 cm soil depth. From the investigation it was found that the level of organic carbon, nitrogen, zinc, phosphorus and sulphur was low to medium and potassium content was in medium range in soils of selected sites in orchards in Bikaner district. All soil nutrients were found positively correlated with nutrient status of leaves, fruit yield and qualitative attributes of ber except phosphorous and zinc contents in leaves.

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## 3. HORTICULTURE AND TASAR FLORA: STATUS, SCOPE AND POTENTIAL UTILIZATION

A.K. Srivastava, Dinesh Kumar, J.P. Pandey, Vijai Kumar<sup>1</sup> and B.C. Prasad

Central Tasar Research and Training Institute, Central Silk Board, Govt. of India, P.O. Piska-Nagri, Ranchi 835303, India.

<sup>1</sup>Department of Horticulture, CSSS (PG) College, Machhra, Meerut, Uttar Pradesh, India.

E-mail-dineshkcsb@yahoo.co.in

**ABSTRACT :** Tasar culture practiced largely by tribal depended hitherto on a host of tasar host plants naturally available in the forest. Changing social fabric on one hand and the need for conservation of tasar flora on the other call for insight and devising focused strategies sustenance of tasar culture is required. In this backdrop, block plantation of Arjun/Asan are taken up at different spacing, of these plantation with 10 × 5 has given more profit. It is need of the hour that tasar food plants combined with land husbandry and horticultural plants viz. *Terminalia catappa*, *Anacardium occidentale*, *Carissa carandus*, *Zizyphus jujuba*, *Eugenia cumini*, etc are effective means of development as tasar food plants for expansion of tasar flora. It will provide gainful employment opportunities in rural areas which will check migration of rural folk to urban areas.

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#### 4. INFLUENCE OF NITROGEN, PHOSPHORUS AND POTASSIUM FERTILIZERS ON YIELD AND QUALITY OF GRAPES CV. PERLETTE

**N.K. Arora, M.I.S. Gill and Navjot<sup>1</sup>**

Department of Horticulture, Punjab Agricultural University, Ludhiana, Punjab

<sup>1</sup>PAU Regional Station, Bathinda, Punjab

**ABSTRACT:** The present studies were conducted to ascertain the effect of different combinations of N, P and K fertilizers on the yield and quality of Perlette grapes. The yield and quality characteristics varied with the different combinations of N, P and K. The mean pooled data indicates that the maximum number of bunches/vine (2.28) were obtained in N<sub>1</sub>P<sub>1</sub>K<sub>1</sub> combination. The mean bunch weight was however, significantly higher (497.2g) in a fertilizer combination N<sub>1</sub>P<sub>2</sub>K<sub>2</sub> followed by combination N<sub>1</sub>P<sub>1</sub>K<sub>2</sub> (469.3). The higher yield /vine (10.3 kg) was obtained in N<sub>1</sub>P<sub>2</sub>K<sub>2</sub> combination. The quality parameters viz., TSS, acidity and TSS/Acid ratio also varied with change in fertilizer dose. The significantly higher TSS (19.1%) was obtained in the bunches harvested from the vines given 75g N, 50 g P and 150 g K. The TSS/Acid ratio was significantly higher (37.3). Thus the fertilizer combination N<sub>1</sub>P<sub>1</sub>K<sub>2</sub> (75g N, 50 g P and 150 g K) year age of vines should be recommended in vineyards to obtain higher yield and better quality fruits.

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#### 5. EVALUATION OF ORCHID SPECIES UNDER SUB-TROPICAL MID-HILLS OF MEGHALAYA

**Rajiv Kumar<sup>1</sup>, Bidyut C. Deka and A.R. Roy**

Division of Horticulture, All India Co-ordinated Research Project on Floriculture

ICAR Research Complex for NEH Region, Umiam 793 103, Meghalaya

Present address: <sup>1</sup>Division of Ornamental Crops, Indian Institute of Horticultural Research, Hesaraghatta lake Post, Bangalore 560 089, Karnataka

E-mail: flori\_rajiv@yahoo.co.in

**ABSTRACT:** Orchids are internationally acclaimed for their exquisite flower forms and attractive colours. Forty orchid species were evaluated for vegetative and flowering characters at ICAR Research complex for NEH region, Umiam, Meghalaya during 2009-10. The findings revealed that plant height ranged from 5.06 cm (*Pleione maculata*) to 140.00 cm (*Thunia marshalliana*). Significantly maximum number of stems/plant was recorded in *Arundina bambusifolia* (15.83). *Epidendrum* sp. recorded maximum stem length (130.50 cm) and internodal length (9.68 cm). However, maximum number of leaves/plant (99.76) and spikes/plant (17.80) was recorded in *Coelogyne nitida*. Earliest flowering was recorded in *Dendrobium aphyllum* (136 days) while it was delayed in *Cymbidium giganteum* (829 days). Number of flowers/spike varied from 1.00 (*Paphiopedilum spicarianum*) to 140.02 (*Aerides multiflorum*). Significantly maximum spike length (90.00 cm) and spike durability (58.90 days) was recorded in *Calanthe masuca* and *Cymbidium hybrid*, respectively. Flower size varied from 0.83 cm (*Pholidota* sp.) to 13.63 cm (*Paphiopedilum villosum*), while *Phaius tankervilleae* (7.86 cm) recorded the longest pedicel. Species *Calanthe masuca*, *Cymbidium giganteum*, *Dendrobium nobile*, *Phaius tankervilleae*, *Renanthera imschootiana*, *Thunia marshalliana*, *Vanda coerulea* were found promising as cut flower.

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#### 6. EFFECT OF GROWTH RETARDANTS ON VEGETATIVE GROWTH, FLOWERING AND FRUITING OF LITCHI CV. CALCUTTIA

**Bikramjit Singh<sup>1</sup>, Sukhdev Singh and Savreet Sandhu**

Department of Horticulture, Khalsa College, Amritsar-143 002

<sup>1</sup>PAU Regional Research Station, Abohar-152 116.

**ABSTRACT :** Present investigation was carried out during 2009-10 to standardize levels of growth retardants (CCC and PBZ) for proper vegetative growth, flowering and fruiting in litchi cv. Calcuttia. Results revealed that PBZ 7.5 ml proved to be the most effective treatment for suppressing shoot growth, panicle size, male flower percentage, fruit drop and sex ratio. Same treatment resulted in increased hermaphrodite flower percentage, fruit set and fruit retention. PBZ 2.5 ml proved to be the most effective in increasing fruit size and PBZ 5.0 ml in fruit breadth and weight. CCC 2000 ppm resulted in maximum pulp weight, pulp/stone ratio, total soluble solids and minimum acidity whereas CCC 500 ppm found helpful in decreasing seed and peel weight. PBZ 7.5 ml was the most effective treatment in producing maximum sugars (total and reducing) and fruit yield/tree.

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## 7. STUDIES ON GENETIC VARIABILITY, HERITABILITY AND GENETIC ADVANCE IN CUCUMBER (*Cucumis sativus* L.)

**Yogesh Chandra Yadav, Sanjay Kumar and Raghvendra Singh**

Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221 005

E-mail : sanjay123\_bhu@yahoo.co.in

**ABSTRACT:** A field experiment was conducted with 20 diverse genotypes (BSC-1, BSC-2, CH-122, 126, 128, CHC-1, Swarna Ageta, VRC-11-2, CC-3, CC-8, DR/NKV/02, VRC-19, CC-2, 4, 5, 6, 7, 9, 1 and Ranchi-1) in randomized block design with three replications. Analyzed data revealed that among all the genotypes CC-5, BSC-2, BSC-1, CH-128, CHC-2 and CC-2 gave promising results.

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## 8. INTEGRATED NUTRITIONAL MANAGEMENT AFFECTS THE GROWTH, FLOWERING AND FRUITING OF REJUVENATED BER

**P.N. Katiyar, V.K. Tripathi, R.K. Sachan, J.P. Singh and Ram Chandra**

Department of Horticulture

C.S. Azad University of Agriculture & Technology, Kanpur, U.P.-208002

**ABSTRACT:** The experiment was carried out in the Horticulture Garden of C.S. Azad University of Agriculture & Technology, Kanpur during 2009-11 to investigate integrated nutritional management effects on the growth, flowering, fruiting yield and quality of rejuvenated ber (*Zizyphus mauritiana* Lamk.) cv. Banarasi Karaka. The 35 years old ber plants were headed back with the help of hand saw after leaf fall during mid of May of 2009. There were six treatments of NPK (g) viz., T<sub>1</sub> (200:100:50), T<sub>2</sub> (400:200:100), T<sub>3</sub> (600:300:150), T<sub>4</sub> (800:400:200), T<sub>5</sub> (1000: 500:250), T<sub>6</sub> (Control – No fertilizer and manure) replicated four times in a RBD. Tree under all the treatments barring T<sub>6</sub> were supplemented with 50 kg FYM. Fertilizer application through DAP, Urea and MoP was done just after pruning the trees. Application of T<sub>5</sub> promoted vegetative growth but blossoming, fruit set were maximized under T<sub>4</sub> where as the percentage of fruit drop was noted minimum under the lowest level of NPK i.e. T<sub>1</sub>. The size and weight of fruit were noted greater under T<sub>4</sub> and smallest size and lesser weight were noted control. The fruit quality was augmented superior in respect of T.S.S., ascorbic acid and lower titratable acidity when the trees were supplemented with 800gN + 400g P + 200gK + 50Kg FYM. The same treatment gave significantly better harvest during first year (30.08 Kg fruits).

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## 9. ECOFRIENDLY MANAGEMENT OF STEMPHYLIUM BLIGHT (*Stemphylium botryosum*) OF GARLIC BY PLANT EXTRACT AND BIOAGENTS

**Upesh Kumar<sup>1</sup>, Prem Naresh and S.K. Biswas**

Department of Plant Pathology, C. S. Azad University of Agriculture & Technology, Kanpur

<sup>1</sup>K.V.K., Sehore (M.P.)

**ABSTRACT:** *In vitro* screening of six extract of plant species viz. *Azadirachta indica*, *Datura metel*, *Lantana camara*, *Parthenium hysterophorus*, *Ocimum spp.*, *Argimone mexicana* and five bioagents viz. *Trichoderma harzianum*, *T. viride*, *Aspergillus niger*, *Penicillium citrinum* and *Gliocladium virens* were tested against *Stemphylium botryosum*. Among plant extracts *Azadirachta indica* (66.5 per cent) and *Datura metel* (64.5 per cent) were the best in restricting the growth of pathogen over control and in evaluation of bioagents, *S. botryosum* + *T. harzianum* (81.2 per cent) and *S. botryosum* + *T. viride* (74.5 per cent) were significantly inhibited the growth of pathogen. Under field condition suppression of pathogen by *T. harzianum*, treating the garlic cloves (0.2 per cent) along with two foliar sprays (0.2 per cent) at 15 days interval found to be most effective for management of this disease.

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## 10. EVALUATION OF BARAMASI LEMON GERMPLASM UNDER PUNJAB CONDITIONS

**S.K. Jawandha, Nav Prem Singh, P.P.S. Gill and Karnail Singh<sup>1</sup>**

Department of Horticulture, PAU, Ludhiana

<sup>1</sup>Deptt. of Plant Breeding and Genetics,

E-mail skjawandha@pau.edu

**ABSTRACT:** Baramasi lemon plants are common found growing in various agro-climatic zones including sub mountainous tract of Punjab and chance for the selection of elite strains are high due to wide genetic diversity in the

exiting germplasm. To assess the genetic variability in baramasi lemon, the fruit samples collected and analysed for various physico-chemical attributes. A wide range of variability with respect to fruit attributes like fruit weight, rind thickness, vitamin C content and number of segments have been recorded. This variability may possibly be exploited for the selection of superior genotypes for conservation, evaluation, utilization and a source for crop improvement in future breeding programme under sub tropical conditions.

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#### **11. EFFECT OF BIO-REGULATORS ON GROWTH AND YIELD PARAMETERS OF *CAPSICUM* CULTIVARS UNDER CONTROLLED CONDITION**

**R.N. Singh, S.L. Pal<sup>1</sup>, D.K. Rana<sup>1</sup>, S.S. Rawat and M.S. Gusain**

*Department of Horticulture, Chauras Campus, HNB Garhwal University, Srinagar (Garhwal) 246 174, Uttarakhand, India.*

<sup>1</sup>*Deptt of Horticulture, R.S.M. College, Dhampur (Bijnor) U.P.*

**ABSTRACT :** The investigation was carried out to study the effect of bio-regulators on growth and yield parameters in *capsicum* under protected condition in Garhwal region. The investigation revealed that bio-regulators spray had significant influence on growth and yield. Spraying of NAA @ 50ppm increased the plant height, number of secondary branches, leaf area, days taken for anthesis, number of flowers/plant, number of fruits/plant, fruit weight and yield per plot. The maximum height (114.38 cm) and maximum yield (1.85 kg) per plant was found in treatment T<sub>3</sub>.

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#### **12. EFFECT OF LOW DENSITY POLYETHYLENE (LDPE) PACKAGING AND CHEMICALS ON AMBIENT STORAGE OF KINNOW**

**S.K. Jawandha, P.S. Tiwan and J.S. Randhawa**

*Department of Horticulture, Punjab Agricultural University, Ludhiana-14004 (Punjab), India*

**ABSTRACT:** Study was planned and freshly harvested kinnow fruits were washed and treated with Sodium carbonate (2 & 3 %), Boric acid (2 & 3%) and packed in low density polyethylene (LDPE) bags with perforation and without perforation before packaging in CFB boxes. Fruits were analysed for various physico-chemical characteristics after 15, 30,45 and 60 days of storage. Results revealed that minimum rotting and maximum palatability rating and acidity were registered in Boric acid @ 3 % + LDPE packaging with perforation during the entire storage period. TSS was found maximum in control fruits, whereas minimum physiological loss in weight was recorded in Boric acid @ 3 % +LDPE packaging without perforation. It can be concluded that the storage rots can be reduced by treating the kinnow fruits with Boric acid @ 3 % +LDPE packaging with perforation and fruit health can be maintained up to 45 days at ambient conditions without much deterioration in quality.

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#### **13. EFFECT OF PRE-HARVEST APPLICATION OF MICRO-NUTRIENTS ON QUALITY OF GUAVA (*Psidium guajava* L.) CV. SARDAR**

**A.K. Goswami<sup>1</sup>, H.S. Shukla, Prabhat Kumar<sup>2</sup> and D.S. Mishra<sup>2</sup>**

*C.S. Azad University of Agriculture and Technology, Kanpur- 208 002*

<sup>1</sup>*Division of Fruits and Horticultural Technology, IARI, New Delhi*

<sup>2</sup>*Department of Horticulture, G.B.P.U.A.&T., Pantnagar*

*E-mail: amitk@iari.res.in, amit.tkg@gmail.com,*

**ABSTRACT:** The present investigation was conducted on uniform, healthy, nine year old budded trees of guava (*Psidium guajava* L.) cv. Sardar. Various doses of calcium nitrate, boric acid and zinc sulphate were sprayed twice i.e. 45 and 25 days before harvesting and compared with untreated ones. Each treatment was applied on two trees and replicated thrice in a randomized block design. It was observed that the size of fruit comprises length, diameter, volume were maximum in fruits collected from trees sprayed with zinc sulphate (0.4 per cent). The maximum weight was observed under 0.4 per cent boric acid and it was at par with zinc sulphate at 0.4 per cent. The zinc sulphate 0.4 per cent also improves the physico-chemical parameters at harvest. Among the different treatments pre harvest spray of zinc sulphate at 0.4 per cent was found most effective for improving the physico-chemical parameters at harvest and prolonged the shelf-life of fruits exhibiting lower degree of post-harvest losses.

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#### 14. EFFECT OF ZINC, IRON AND COPPER ON YIELD PARAMETERS OF GLADIOLUS

**J.P. Singh, Krishna Kumar and P.N. Katiyar**

*Department of Horticulture, C.S.A.U.A. & T., Kanpur*

**ABSTRACT:** An experiment entitled "Effect of zinc, iron and copper on yield parameters in gladiolus" was carried out at, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur during the year 2010-11. The experiment consisted two levels each of Zn (Zn<sub>0</sub> and Zn<sub>1</sub>), Fe (Fe<sub>0</sub> and Fe<sub>1</sub>) and Cu (Cu<sub>0</sub> and Cu<sub>1</sub>) which were sprayed on gladiolus plant. The dose of foliar spray of zinc, iron and copper were 0.50%, 0.25% and 0.25%, respectively. Weight of corms significantly increased with the application of Zn and Cu (94.38 and 94.82 g, respectively). Diameter of corms influenced significantly with the application of Zn, Fe and Cu (5.71, 5.77 and 5.81 cm diameter, respectively). Foliar spray of Zn, Fe and Cu, significantly increased the number of corms per plant. Interaction between Zn x Fe and Zn x Cu, significantly enhanced number of corms per plant whereas, the number of corms per plant revealed by Zn (1.74), Fe (1.66) and Cu (1.68) over their respective controls. Maximum increase in cormels production per plant was influenced due to application of zinc (44.97) followed by spray of copper (43.18) and iron (42.11) over their respective controls.

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#### 15. EFFECT OF GA<sub>3</sub> AND IAA ON GROWTH AND FLOWERING OF CARNATION

**Vijai Kumar, Vipin Kumar, Vandana Umrao<sup>1</sup> and Monbir Singh**

*Department of Horticulture, Ch. Shivnath Singh Shandilya (P.G.) College, Machhra, Meerut-250 106 (U.P.) India*

*<sup>1</sup>Department of Ag. Botany*

*E- mail:umraovk@gmail.com*

**ABSTRACT:** A field experiment was conducted to find out effect of plant growth promotors (GA<sub>3</sub> and IAA) on growth and flowering of carnation under open field condition of Western Uttar Pradesh. Four levels of each of gibberellic acid (0, 50, 100n and 150 ppm) and IAA (0, 100, 200 and 300 ppm) were sprayed on standing crop of carnation in factorial R.B.D. with three replications. Results revealed that higher concentration of GA<sub>3</sub> (150 ppm) or IAA (300 ppm) applied individually responded favourable effects on most of the paramaters studied. The interaction of higher levels of both the hormones (150 ppm GA<sub>3</sub> 300 ppm IAA) influenced significantly to all the characters except no. of side shoots and diameter of stem.

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#### 16. EFFECT OF MICRONUTRIENTS SPRAY ON FRUIT DROP, FRUIT QUALITY AND YIELD OF AONLA CV. BANARASI

**Prakash Chandra Singh, Ritesh Singh Gangwar and Vivek Kumar Singh<sup>1</sup>**

*College of Agriculture, C.S. Azad University of Agriculture and Technology Kanpur-208 002 (U.P)*

*<sup>1</sup>Department of Horticulture*

**ABSTRACT :** An investigation was carried out during 2006 and 2007 to study the effect of boron (0.1, 0.2 and 0.3%), zinc (0.2, 0.4 and 0.6%) and copper (0.1, 0.2 and 0.3%) alongwith a control on fruit drop, physical parameters and yield of aonla fruits cv. Banarasi. There were ten treatments tried in a RBD. All the characters studied were significantly improved by application of different micro-elements and their levels showing varying degree of their efficacy. The minimum fruit drop (56.84 and 50.22%), maximum length of fruit (4.01 and 4.10cm), breadth (4.31 and 4.35 cm), weight (46.85 and 47.34 g) and pulp content (44.66 and 45.16 g) were obtained under the foliar spray of zinc. Among the three concentrations, the higher level proved most effective in respect of all the characters. Zinc at its higher concentration proved the best treatment in improving the yield of aonla.

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#### 17. GENETICAL STUDIES ON ZIMIKAND (*Amorphophallus campanulatus* Blume.)

**Sanjive Kumar Singh and S.M. Tripathi**

*Department of Vegetable Science*

*C. S. Azad University of Agriculture and Technology Kalyanpur, Kanpur-208 024*

**ABSTRACT:** Phenotypic and genotypic coefficient of variation, heritability, correlation coefficient and path analysis were estimated for plant height, length of leaf, stem diameter, equatorial diameter and corm yield per plant in zimikand (*Amorphophallus campanulatus* Blume). The experiment comprising 18 diverse genotypes have been sown in RBD with 3 replications during 2002-03 and 2003-04 at Vegetable

Reaserch Farm of C.S.Azad Uni. of Agr. & Tech.Kalyanpur, Kanpur. The analysis of variance revealed highly significant differences among genotypes for all the characters. High heritability accompanied with moderate genetic advance as per cent of mean for different characters suggested that improvement in corm yield may be made through selection. Phenotypic correlation coefficients of all characters with yield were found positive and highly significant. Yield per plant had strong positive correlation with equatorial diameter and stem diameter at genotypic level. The path coefficient revealed maximum direct effect of equatorial diameter on yield followed by length of leaf in both the years while plant height showed negative direct effect on yield. Thus, the characters like equatorial diameter and leaf length may be considered while making selection for the improvement of yield in zimikand.

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#### **18. EFFECT OF GA<sub>3</sub> AND BA ON FRUIT WEIGHT, QUALITY AND RIPENING OF 'ROSE SCENTED' LITCHI**

**D.S. Mishra, Prabhat Kumar and Rajesh Kumar**

*Department of Horticulture, College of Agriculture, G.B. Pant University of Agriculture & Technology,*

*Pantnagar-263145, U.S. Nagar, Uttarakhand*

**ABSTRACT:** An attempt was made to study the effect of GA<sub>3</sub> and BA on ripening of litchi cultivar Rose Scented. In this attempt, KNO<sub>3</sub> (4%) was sprayed at 1 cm size of panicle in the first week of February. However, other treatments viz. GA<sub>3</sub> (20, 40 ppm) and BA (20, 40 ppm) were applied two weeks before expected date of harvest (on 15<sup>th</sup> May). KNO<sub>3</sub> (4%) advanced the harvesting date only for 2 days in comparison to control. GA<sub>3</sub> 20 and 40 ppm delayed the harvest date for 2 and 5 days, respectively while BA 20 ppm and 40 ppm delayed the harvest date for 5-6 days. In all the treated trees, fruit weight was found to be more than 21g as compared to control. Higher fruit quality attributes were recorded with GA<sub>3</sub> (40 ppm) followed by GA<sub>3</sub> 20 ppm over other treatments. Reduced fruit cracking was also observed in trees which were sprayed with GA<sub>3</sub> and BA.

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#### **19. CORRELATION STUDY FOR PHYSICO-CHEMICAL CHARACTERS IN JAMUN**

**Yartika Srivastava<sup>1</sup>, Prabhat Kumar<sup>2</sup> and P.N. Rai<sup>2</sup>**

<sup>1</sup>*Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221005*

<sup>2</sup>*Department of Horticulture, G. B. Pant University of Agriculture and Technology, Pantnagar (Uttarakhand)*

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#### **20. GENETIC VARIABILITY FOR SOME METRIC TRAITS IN STRAWBERRY (*Fragaria × ananassa* Duch.)**

**Bijay Kumar, Sanjay Kumar and Yogesh Chandra Yadav**

*Department of Applied Plant Science (Horticulture)*

*Babasaheb Bhimrao Ambedkar University, (A Central University) Vidya-Vihar, Rae Bareilly Road, Lucknow-226 025*

*E-mail-sanjay123bhu@gmail.com*

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#### **21. RESPONSE OF BORON, ZINC AND COPPER ON QUALITY OF AONLA FRUITS CV. BANARASI**

**Prakash Chandra Singh, Ritesh Singh Gangwar and Vivek Kumar Singh**

*College of Agriculture, C.S.Azad University of Agriculture and Technology, Kanpur-208 002 (U.P.)*

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#### **22. SCREENING OF OKRA VARIETIES FOR RESISTANCE TO YELLOW VEIN MOSAIC VIRUS UNDER FIELD CONDITION**

**Ajay Tiwari, B. Singh, T.B. Singh, S.K. Sanval and S.D. Pandey**

*Indian Institute of Vegetable Research, Varanasi*

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#### **23. PARTICIPATION OF FARM WOMEN IN AGRI-HORTICULTURAL ACTIVITIES IN RURAL AREA OF DELHI**

**Manoj Kumar Pandey<sup>1</sup> and Himanshu Pandey**

*Krishi Vigyan Kendra, Ujwa, New Delhi-110 073, 'K.V.K.', Deoria*

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